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CONFERENCE ON COORDINATION OF THE COOPERATIVE STUDIES OF FIRST GRADE READING.

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DESCRIPTORS- *CONFERENCES, *RESEARCH COMMITTEES, *GRADE 1, *READING RESEARCH, COOPERATIVE PROGRAMS, *COOPERATIVE PLANNING, SPECIALISTS, CONSULTANTS, GROUP ACTIVITIES, CHICAGO, ILLINOIS, NATIONAL CONFERENCE ON RESEARCH IN ENGLISH (NCRE)

SIXTEEN MEMBERS OF THE NATIONAL CONFERENCE ON RESEARCH IN ENGLISH MET FOR A 3-DAY CONFERENCE TO PLAN COOPERATIVE FIRST-GRADE STUDIES FOR 1964-65. CONSULTANTS IN RESEARCH DESIGN, EVALUATION, AND STATISTICAL ANALYSIS WERE PROVIDED FOR SUBGROUPS WORKING ON SPECIAL ASSIGNMENTS. SMALL SUBGROUPS PREPARED RECOMMENDATIONS WHICH WERE UNANIMOUSLY ADOPTED AFTER DISCUSSION. SUBJECTS OF THE RECOMMENDATIONS WERE (1) EXPECTATIONS FOR A RESEARCH COORDINATION CENTER, (2) PROCEDURES FOR DEVELOPING AND CARRYING OUT OBJECTIVES OF THE CENTER, (3) PERSONNEL FOR THE CENTER, (4) COMMON DATA FOR THE PROJECTS, (5) RESEARCH DESIGN, (6) COMMON MEASURES, (7) INITIAL COMMON DATA, (8) OPTIONAL DATA, (9) ACCOUNTING FOR CLASSROOM VARIABLES, (10) ACCOUNTING FOR SCHOOL VARIABLES, (11) UTILIZATION OF TECHNOLOGICAL DATA PROCESSING, (12) STATISTICAL ANALYSIS, AND (13) CONTROL OF VARIABLES. BASED UPON THE RECOMMENDATIONS, GENERAL CRITERIA WERE SUGGESTED FOR SELECTING INDIVIDUAL PROJECTS AS PARTS OF A COORDINATED STUDY. (JM)

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E-035

REPORT OF A DEVELOPMENTAL PROGRAM

Submitted to the U.S. Commissioner of Education
Under the Provisions of Public Law 531

Conference on Coordination of the Cooperative Studies of First Grade Reading

Submitted by: Helen M. Robinson
University of Chicago

Final Report Covering Contract No. OE-4-10-141

U.S. Department of Health, Education and Welfare

Report of Conference, March 6-8, 1964

A Conference to plan cooperative first-grade studies for 1964-65 was held under the auspices of the National Conference on Research in English, with the planning assigned to the general chairman, Helen M. Robinson. The following officers and members of NCRE attended: Theodore Clymer, President, University of Minnesota; Helen Huus, secretary, University of Pennsylvania; Mary Austin, Western Reserve University; William Sheldon, Syracuse University; Leo Fay, Indiana University; Guy Bond, University of Minnesota; Thomas D. Horn, University of Texas; Donald Durrell, Boston University; Emery Bliesmer, University of Virginia; Donald Cleland, University of Pittsburgh; Theodore Harris, University of Wisconsin; Jeanne Chall, City College of New York; Albert J. Harris, City University of New York; Arthur Heilman, Pennsylvania State University; Ralph Staiger, Executive Secretary, International Reading Association; and Robert Ruddell, representing David Russell, University of California.

Consultants from the University of Chicago were provided for sub-groups working on special assignments. The consultants were: Bertram Masia, research design; John Ginther, evaluation; and Benjamin Wright, statistical analysis.

Four professional recorders, members of the Reading Research Center Staff at the University of Chicago were: Helen K. Smith, H. Alan Robinson, Sam Weintraub, and Oliver Andresen.

The group met for luncheon at the Continuing Education Center on the campus of the University of Chicago promptly at 12:00. There they were welcomed by Dean Francis S. Chase.

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The agenda accepted for the Conference follows:

Friday, March 6, 1964

12:00	Luncheon meeting of all participants. Plans were presented
2:00 - 5:00	Working committee meetings
6:00 - 9:30	Dinner, followed by reports from each committee and exchange of ideas

Saturday, March 7, 1964

9:00	Committee meetings
12:00	Luncheon: committee reports and discussion
2:00 - 5:00	Committee meetings
Evening	Preparation of final reports to be presented the following day

Sunday, March 8, 1964

9:00	Final reports from committees, discussion and approval of total final report of the Conference
12:00	Dismissal

Small sub-groups prepared recommendations dealing with the functions of the Coordinating Center, characteristics of the common research design, possible outcomes and measures of the cooperative studies, and plans for the statistical analysis of common and unique data. Frequent interchange of suggestions throughout the conference and frank discussions on Sunday morning led to a unanimous adoption of the recommendations which comprise the major portion of the report.

Recommendation I: Expectations of the Coordinating Center

Functions of the Coordinating Center identified are in three major categories:

1. Related to the coordinated design;

2. Related to consultation services;

3. Related to dissemination of information.

The foregoing categories are illustrated in the following diagram:

COORDINATING CENTER FUNCTIONS

1. Related to coordinated design
   - A. Development of design
   - B. Analysis of common data
   - C. Interpretation of common data

2. Related to Consultation with projects. Implementation provided to give each project assistance as requested with:
   - A. Statement of problem
   - B. Design
     1. Population — Selection; Characteristics
     2. Treatment
     3. Measures — Common; Unique related individual projects; Unique individual projects
     4. Description of procedures
   - C. Analysis of data
   - D. Interpretation

3. Related to Dissemination of Information
   - A. Keep U.S. Office of Education informed
   - B. Keep all project directors informed
   - C. Storage and distribution of available data
   - D. Prepare final report

Related Projects with Common (and unique) Measures

Related Pro with Unique Measures Onl

Recommendation II: Procedures for Developing and Carrying Out Objectives of the Coordinating Center

Within the resources available to the Coordinating Center, the following activities, meetings, and intervisitations are recommended:

A. Prior to the initial meeting of individual project Directors,

1. There shal be a review of individual projects by staff of the Coordinating Center;
2. There shall be contact by correspondence with each individual project Director for purposes of:
   a. clarifying procedures in the individual project;
   b. suggesting consultation, if necessary and feasible, with appropriate personnel (statistical, public school, et al.) in the project's geographical locale on any special problems raised by the Coordinating Center.

B. Initial meeting of all individual project Directors, Coordinating Center Staff, and appropriate U.S. Office of Education personnel to:

1. Work out details related to the coordinated design, as mentioned in part 1 of the diagram presented earlier. Examples of specific problems which may be discussed include:
   a. minimum variables which need to be controlled, either experimentally or statistically;
   b. minimum number of common measuring instruments;
   c. methods for observing the degree to which teachers are adhering to the specified teaching methods of the proposal;
   d. methods of statistical analysis; and

e. feasibility of having test scoring and statistical computations centralized.

2. Give assistance as needed and requested by individual projects.

3. Consider preliminary plans for needed follow-up studies, replications, and/or modified studies.

C. Visitation by staff from the Coordinating Center as needed for purposes of:

1. consulting and/or providing assistance on individual projects;

2. collecting information useful for the Coordinated Study;

D. Regional meetings among individual project Directors and staff of the Coordinating Center for consultation and interchange of information.

E. Intervisitations and classroom observations among individual project Directors will be encouraged:

1. as is necessary to clarify procedures;

2. to exchange information.

F. Follow-up meetings or meetings as needed; certainly one at the end of the first year to:

1. exchange information;

2. evaluate;

a. functions of the Coordinating Center and the continuing need for such a Center;

b. effectiveness of the cooperative effort.

3. report self-evaluation of individual projects;

4. suggest next steps which may include:

a. recommendations for continuation of certain projects;

b. recommendations for replications of certain projects;

c. further refinement of procedures and reappraisal of measuring instruments.

G. Provisions should be made for the selection, adaptation and possible presentation of instruments for collecting common data.

H. Provisions should be made for the collection, analysis, and interpretation of the common data.

Recommendation III: Coordinating Center Personnel

Suggested Coordinating Center personnel should include:

A. Director

B. Associate Director

C. Statistician

D. Research design expert

E. Measurement specialist

F. Appropriate consultants, when needed, such as:

1. linguists;

2. sociologists;

3. anthropologists;

4. psychologists;

5. computer experts.

G. Additional professional and clerical personnel to carry out the duties of the Coordinating Center, the number of such personnel to be

dependant on the number of projects involved.

In addition to the recommendations dealing with the functions of the Coordinating Center, the group agreed that the Center insure the collection of some common data, as shown in the following recommendation.

Recommendation IV: Common Data for the Projects

The following common data should be collected and collated for the Cooperative studies:

1. Teacher characteristics of age, sex, educational level (degree, college, date), total years of experience, years of experience in first grade, marital status;
2. Pupil characteristics of age, sex, intelligence, general health, visual acuity and perception, auditory acuity and perception, previous school experience, and level of reading achievement upon entrance to first grade;
3. Community and school characteristics, as region of the country (North, South, etc.), size of the community, type of community (i.e., industrial, commercial, etc.), type of neighborhood, size of school, and per pupil expenditure on education. With respect to characteristics of these types, the Committee recommends that a typology of school and community characteristics be developed for use in cooperating projects.

If the studies are to be truly cooperative and comparisons of common data are to yield significant or definitive findings, each of the individual projects should incorporate in the research design the

aspects included in the next recommendation.

Recommendation V: Research Design

1. The theoretical structure and/or the psychological rationale should be clearly specified;
2. The experimenter should describe for all treatments:
   a. the nature and mode of presentation of materials;
   b. the nature, sequence, timing (pacing), emphasis on reading activities (including supplementary and curricular reading).
3. The proposals should include highly operational statements of outcomes of methods in the cognitive realm and, if necessary, in the affective and psycho-motor realms to facilitate the selection and/or development of evaluation devices;
4. Teacher characteristics relevant and/or unique to the study should be clearly specified and may include data with respect to teacher personality, cultural background, specific skills and knowledge, etc.;
5. Pupil characteristics relevant to and/or unique to the study should be clearly specified and may include data with respect to pupil personality and attitudes, specific learning skills and concepts, motivational level, home and family background, etc. Furthermore, the designs may include aspects of the home environment that may influence reading achievement such as expectations of the parents, language styles and models, parental pressures, etc.

6. Environmental characteristics relevant and/or unique to the community, the schools, and the classroom included in the study should be clearly specified and may include data on special conditions of environmental deprivation or privileges in the community, school, or classrooms germane to the teaching of reading.

7. a. If the Hawthorne effect resides in the teacher, the design should be modified to include teacher attitude toward method as a control variable with repeated measures of these attitudes throughout the duration of the study. If such attitudes cannot be used as a control variable, then these data should still be systematically collected and treated as an independent variable in the data analysis.

   b. If the Hawthorne effect resides in the materials, repeated measurements of the pupils' attitudes toward and/or interest in the materials should be obtained.

The last mentioned aspect of the research design was considered to be a minimum essential because the studies are limited to <u>one year only</u>. A more appropriate experimental design to account for this effect would require a longer period of study. The Hawthorne effect can often reside in the enthusiasm of the teacher for the new method, either because it is new or because she believes it is inherently good. In addition, teachers may wish to show unusually good results because they are engaged in an important experiment. Likewise, the interests

of pupils in the new materials may be heightened because the materials contain "gimmicky" qualities that are temporarily attractive.

With comparable research designs, the possible outcomes of the different methods of teaching beginning reading were anticipated. The conference members were aware that some aspects of the recommendation that follows will necessarily be altered when all individual projects are selected.

Recommendation VI: Common Measures

The following characteristics of growth in reading and concomitant abilities should be determined:

1. general achievement in reading needs to be measured by a standardized reading achievement test;
2. accuracy and speed of oral reading;
3. sight vocabulary, recognition of both high frequency and regularly spelled words;
4. knowledge of phonic elements and the ability to apply such knowledge in identifying words;
5. competence in rate of silent reading;
6. literal comprehension and interpretation of continuous material;
7. spelling ability (regularly spelled words and those with high loadings of homophones);
8. writing ability (as revealed in unified compositions rather than by a knowledge of mechanics);

9. interest and initiative in reading, both in learning to read and in their broader application through wide reading.

In order to dtermine the competence of each pupil in the cooperating studies at the end of the first grade, standardized tests such as the New Stanford Achievement Test or the Metropolitan Achievement Test may be used for the first characteristic mentioned above. The New Stanford may be preferable because it appears to contain more pertinent items and subtests which lend themselves to internal analysis. Also it includes subtests of spelling and phonic knowledge. Measures of the other characteristics will be selected or devised cooperatively by the Directors of individual projects and the staff of the Coordinating Center.

The group suggested that testing be conducted by members of the individual project research staff rather than by classroom teachers involved in the study.

Recommendation VII: Initial Common Data

Near the beginning of the year, at a time agreed upon by all cooperative project Directors, data should be collected for all participating pupils as follows:

1. chronological age;
2. sex;
3. socio-economic status;
4. length of pre-first grade school attendance (nursery school, Kindergarten, six-weeks of pre-school, etc.);

5. reading achievement upon entrance to first grade, determined by teacher estimation and/or some type of reading test;
6. reading readiness measured by a test such as the Metropolitan Readiness Tests plus selected subtests from other batteries such as the auditory discrimination subtest of the Harrison-Stroud Reading Readiness Profiles;
7. ability to identify letter names as measured by a test of upper and lower case letters;
8. intelligence, measured by a test that yields a language, non-language, and total score, such as the California Test of Mental Maturity.

Recommendation VIII: Optional Data

Some project Directors may wish to collect added information on the following factors concerning pupils:

1. listening comprehension of pupils;
2. oral language facility of pupils using a test such as Berko and Brown's Test of Morphological and Syntactic Development;
3. special studies of selected individuals over the entire period of the investigation using particular variables;
4. environmental process variables (perhaps using a scale such as E. Dave and E. Wolf, University of Chicago), including achievement press, language models, academic guidance, activeness of the family, intellectuality in the home, and work habits in the home;

5. educational attainment of parents.

Some characteristics of teachers may be used by all studies or only by those who choose to use them:

1. teacher's experience, both with the method and materials being used as well as with others;
2. years and types of teaching experience;
3. personality;
4. ethnic background;
5. teacher's demonstrated competence in teaching reading as measured by previous end-of-year achievement of comparable pupils.

In order to make meaningful comparisons of methods of teaching reading, activities in the classrooms must be evaluated while each study is in progress. Observations by staff members of projects and the Center, and interviews with teachers are probably the best means of making such evaluations, but rating scales may be found or should be constructed in order to obtain common data that would be as objective as possible.

Recommendation IX: Account for Classroom Variables

The following factors should be measured or described objectively:

1. Degrees of differentiation of pupil instruction, possibly measured through interviews with teachers and observation;
2. intensity of instruction;
3. amount of reinforcement through reading in other subjects;
4. intensity of the supervisory program;

5. interaction of pupils with pupils and pupils with teacher;

6. classroom environmental process variables: achievement press, language models, academic guidance, intellectuality and work habits as observed in the classroom.

A suggested means of evaluating item 5 is the Amidon-Flanders Interaction Analysis, a dynamic instrument which analyzes verbal behavior in the classroom. This rating scale can describe at least five different kinds of classrooms. (Edmond J. Amidon, Temple University and Ned Flanders, University of Michigan.)

Recommendation X: Accounting for School Variables

The following characteristics of the school should be determined:

1. number of first grades in each school;
2. number of pupils per class;
3. length of school day;
4. length of school year;
5. yearly average expenditure per pupil;
6. size of school library and type of library services provided;
7. population and type of the community (urban, rural, etc.);
8. physical conditions of the school (new, old but in good repair, etc.);
9. socio-economic status of the neighborhood;
10. cooperation with teacher-education centers;
11. rating of principal's attitude toward the experiment (perhaps on a three-point scale: favorable, indifferent, unfavorable);

12. principal's experience in elementary teaching and preparation for elementary teaching and administration.

The statistical treatment of many variables is possible with modern computers. This possibility led to the next recommendation.

Recommendation XI: Utilization of Technological Data Processing

In order that the Coordinating Center, as well as individual projects, take maximum advantage of modern technology, it is recommended that data be collected in the light of the following information.

Modern statistical techniques enable research workers to evaluate in a comprehensive yet economic fashion many more variables than have been practical previously. Implications are:

1. The scope of a study can be enlarged since data can be recorded in forms allowing efficient automatic recording, scoring and analysis (e.g., with optical scanners, computers, etc.);
2. In particular, this makes it practical to record, and hence to analyze, individual item responses as well as composite scores;
3. The Coordinating Center can collate, file and reproduce common data from cooperating projects in a fashion never before possible;

4. This data library can then be made available if it is released by the originators;

5. That refined and extensive analysis of whole and part scores and their interrelationships is possible.

Recommendation XII: Statistical Analysis

The general multivariate multiple regression model can be used in the analysis of the common data. A description of this model appears on the following page.

In selecting a suitable statistical model the following considerations are fundamental. The model should:

1. cover the analysis of data coming from the widest range of research designs;
2. provide flexibility in the statistical exploration of variables and their interrelationships;
3. facilitate the supplementary utilization of data on which complete results are unobtainable;
4. facilitate the examination of unanticipated alternatives.

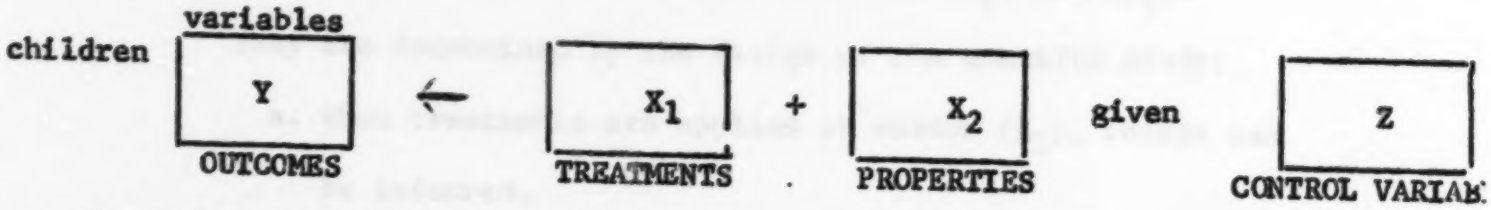
• MULTIPLE REGRESSION MODEL

Main Goal: to identify basic response factors and their particular causes (treatments) and/or correlates (related properties).

1. While analysis of variance and covariance models contribute a great deal to the clarity of research design, in data analysis they can be covered in general multiple regression. So it will suffice to operate in terms of a general multiple regression or linear model. (See Graybill, F.A., Introduction to Linear Statistical Models. McGraw-Hill, 1961.)

2. A basic model is: $Y = X_1\gamma + X_2\beta + Z\delta + E$ (E is an error matrix)

   Writing this in terms of observation matrices:



   Where rows are children, columns are variables.

   Note that the dependent variables are multiple. For the joint analysis of these multiple dependent variables, see Bock, D., "Programming Multivariate Analysis of Variance," Technometrics, 1963, 18, 95-117.

3. Kinds of variables:

OUTCOME (Y)	Dependent variables like: reading achievement attitudes books read vocabulary (very important to have common among studies)
TREATMENTS (X_1)	Primary independent variables like: methods teacher types and arrangements texts applied at random to children, interpreted as causes
PROPERTIES (X_2)	Secondary independent variables like: treatments above and cultural deprivation accepted as observed, not applied at random, interpreted as correlates
CONTROL (Z)	Observed concomitant variables like: age sex social class I.Q. reading readiness

Referring to the model on the preceding page, it is obvious that four classes of observations and/or measures can be identified in the regression model. The classes are:

1. The outcome or response variables (Y).

   They are the measures of results, e.g.: reading comprehension, word analysis skills, sight vocabulary, speed, number of books read, attitude towards reading, and the like.

2. The experimental or treatment variables (X_1) and (X_2).

   They are determined by the design of the specific study:

   a. when treatments are applied at random (X_1), causes can be inferred.

   b. when treatments are properties of the situation, i.e., observed as encountered (X_2), relationships can only be inferred.

3. The control or concomitant variables (Z).

   They are variables which are controlled by matching at the design stage and/or by covariates at the analysis stage, e.g.: reading readiness, age, sex, intelligence, social class, etc.

Recommendation XIII: Control of Variables

It is recommended that wherever possible common observations and/or tests be used by individual studies for the measurement of the outcome variables (Y), and for the control variables (Z). In this way only variables (X_1) and (X_2) will be expected to account for different

outcomes.

The foregoing thirteen major recommendations led to suggested criteria for selecting the individual projects to become a part of the coordinated study. They are:

1. The potential expectation of generalizable findings should yield maximal contributions to theory and to practice in teaching reading.
2. The research proposals should conform to high standards of statistical design and instrumentation.
3. The discrete characteristics, properties, practices, and functions of the methods and/or materials to be compared should be clearly defined and described.
4. Insofar as possible, a balance should be maintained with regard to:
   a. types of children studied;
   b. methods and materials used;
   c. geographical distribution of individual projects.

Moreover, well-designed and significant proposals should be funded, even though they may not appear to fit into the coordinated plan.

The members of the conference expressed great satisfaction that each sub-committee was able to be as specific as possible at this time, before the individual projects had been accepted.